FACTORS AFFECTING PERFORMANCE OF E-PROCUREMENT SYSTEM IN THE ENERGY SECTOR IN KENYA; A CASE STUDY OF KENGEN

[1]Karani Anthony Muriithi, [2]Dr. Esther Waiganjo, [3]Caren Chepngetich

[1]Jomo Kenyatta University of Agriculture and Technology P. O Box 51976-00100 Nairobi, Kenya

[2,3]Jomo Kenyatta University of Agriculture and Technology P.O Box 62000-00200 Nairobi, Kenya

Abstract: **This study assessed the factors affecting performance of e-procurement system in the energy sector. The specific objectives were; establish the influence of user training and uptake on performance of e-procurement at KenGen, examine the influence of top management on performance of e-procurement at KenGen, determine the influence of stakeholder interest on performance of e-procurement at KenGen; establish the buyer/supplier integration on performance of e-procurement. The study used descriptive case study design and it adopted both qualitative and quantitative approaches. Data was analysed using Statistical Package for Social Sciences (SPSS) version 22. The findings of the study revealed that user training and uptake, top management, buyer-supplier integration and stakeholder interest had 69.8% significance in performance of e-procurement system at KenGen. However, user training and uptake was noted to have the least significance on performance of e-procurement at KenGen while stakeholder interest had the strongest significance. The study recommended that the management should formulate favorable policies, provide enough funds and equipment to improve e-procurement, involve all the stakeholders before, during and after implementation of e-procurement system. Further, the organization should be open and give complete information when dealing with suppliers and involve its employees and suppliers and train them regularly.**

Keywords: **Performance of E-procurement system, user training and uptake, top management support, buyer-supplier integration and stakeholder interest.**

1. INTRODUCTION

In the past procurement, at one time, was traditionally carried out by visiting a store and then following the procedures for placing an order. The process of procurement traditionally involved manual procedures and the transactions were often slow processes. The traditional procurement processes form the basis for the introduction of e-procurement to the system. The emergence of internet meant that companies started turning their procurement activities towards internet since it would benefit them if all procurement processes are carried out correctly, efficiently and properly (Hossein & Jawid, 2014).

E-procurement has been defined as the use of Internet-based (integrated) information and communication technologies (ICTs) to conduct each or all stages of the procurement process including search, sourcing, negotiation, ordering, receipt, and post-purchase review. Several forms of e-Procurement exists that focus on one or many stages of the procurement process such as e-Tendering, e-sourcing, e-advertising, e-payment, e-invoicing, e-catalogue (Kirimi & Noor, 2014).

In Surabaya, Indonesia, e-procurement for small contracts has meant a 50% in a state budget and 23% for large contracts. The benefits of e-procurement in Surabaya as noted by Transparency International (2006) are: increased efficiency, improved transparency, enhanced risk management, higher levels of integrity, greater and better access to government procurement for small and medium size enterprises, corruption avoidance and cost reductions up to 20% as compared to traditional manual procurement.

In comparison to tradition procurement, the use of e-procurement reduces the cost per transaction by 65% (Davila, Gupta & Palmer, 2003). Companies using e-procurement system reported that they achieve saving up to 42% in purchasing transaction cost as a result of less paperwork, which enables transaction processes to be less prone to errors, and more efficient purchasing. Paper-based procurement process means that transaction costs range from $70 to $300 per purchase order. General Electronic saw those cost drops to 30% after instituting e-procurement system.

Government institutions have realized that an e-procurement system on its own is not a guarantee for success regardless of how advanced or technically sound the e-procurement system may be. Success of the system is not measured by the physical implementation of the system in isolation, but must also evaluate other aspects of procurement carried out on the system. Further, success of procurement is more dependent on the regulations and policies governing the procurement process, the content of the procurement notice, and the related bidding documents and the involvement of the supplier community (Expert Group Report, 2011).

1.1 Statement of the problem:

The procurement function in Kenya has been characterized by several scandals attributed to poor handling of procurement information thus leading to high corruption (Thai, 2009). This results to the need to have an efficient automated e-procurement system to enhance competitiveness, transparency and reduced costs (Ogot, 2009). This is significant since 60% of government expenditure is spent through public procurement.

Locally Mburu (2011) did a study on the role of e-procurement in enhancing efficiency in telecommunication industry. Mose (2013) did a study on the critical success factors and challenges in e-procurement adoption in large manufacturing firms in Nairobi, Kenya and Makau (2014) studied on the challenges facing the adoption of electronic procurement in public sector.

A survey done on February (2015) by national treasury showed that 30 per cent of the state corporations have partially automated procurement systems while 14 per cent had fully automated their procurement process. The treasury indicated that emphasis on e-procurement system is to ensure transparency in how tenders were awarded. Estimates by the Treasury showed that the government losses more than Sh70 billion annually due to fraudulent manipulations in procurement process. KenGen was identified to have fully implemented e-procurement system though the system was not meeting the expected benefits (Wanzala, 2015).

KenGen was ranked among top ten public sectors associated with procurement manipulations (TI, 2012). Data from World Bank show that KenGen lost 5 Billion relating to procurement and e-procurement malpractices (WB, 2012). According to Kisero (2015) KenGen is said to have illegally awarded a Chinese firm a tender worth 8 billion contrary to e-procurement system guidelines.

The Parliamentary Energy, Communications and Information Committee resolved that 43 billion contract for drilling 80 new geothermal wells at the Olkaria Geothermal Field Phase I and II be reviewed. It also identified that KenGen contracted Bonfide Company on basis of a 'handshake' contract for rig-move worth Sh 240 million contrary to e-procurement system provisions. This was attributed to failure on transparency in the award of tenders and the lack of adherence to e-procurement system guidelines. However, it was noted that even though KenGen had implemented an e-procurement system, the objectives of the system were not being achieved (Kisero, 2015).

1.2 Objectives of the study:

1.2.1 General Objective:

The general objective of this study was the factors affecting the performance of e-procurement system in the energy sector in Kenya; a case study of KENGEN.

1.2.2 Specific Objectives:

1. To determine the influence of User training and uptake on performance of e-procurement system at KenGen.

2. To establish the influence Top management support on performance of e-procurement system at KenGen.

3. To determine the influence of Buyer/Supplier integration on performance of e-procurement system at KenGen.

4. To examine the influence of Stakeholder interest on performance of e-procurement system at KenGen.

1.3 Research Questions:

1. To what extent does User training and uptake of employees influence performance of e-procurement system at KenGen?

2. How does Top management influence performance of e-procurement system at KenGen?

3. To what extent does Buyer/Supplier Integration influence performance of e-procurement system at KenGen?

4. How does Stakeholder interest influence performance of e-procurement system at KenGen?

1.4 Significance of the study:

Procurement has become an integral part in the performance of many organizations and with the integration of e-procurement many organizations are striving to enhance their performance.

Therefore, this research will help organizations both public and private enhance the performance of their e-procurement systems and more specifically improve the performance of e-procurement at KenGen. This will be achieved by identifying and implementing the factors that contribute to the success of e-procurement system.

Further, it will enable procurement practitioners and managers formulate policies that will enhance performance of e-procurement in their respective organizations by implementing the key factors that will be identified in the study.

Academically, the findings of this study will add up to existing literature in regard to e-procurement. Finally, this study may form the basis for further research on e-procurement in energy sector or other autonomous sectors of the government.

2. LITERATURE REVIEW

2.1 Introduction:

This chapter presents critical reviews on the different theories related to the study, conceptual framework that outlines both dependent and independent variables. Thereafter, the chapter also focuses on critique of existing literature, research gaps and a summary.

2.2 Theoretical review:

A theory highlights and explains something that one would otherwise not see or are difficult to get a complete understanding. The main characteristic of a theory is that it provides an explanation about a phenomenon (Gilbert, 2007). According to Mathooko (2007) a theory is a logically developed and elaborated network of interrelationships between variables significant to the situation under study.

2.2.1 Resource based theory (RBT):

The search for Information Technology has been a key factor in procurement and supply chain management (Pressutti, 2003). Within this field, resource-based theory (RBT) has been identified as new set up for analysing the sources and sustainability of Information Technology (Baily, 2008). According to RBT, Information Technology- measured as economic rent (Caridi *et al*, 2004) - derives from strategic resources. This Information Technology is sustainable to the extent that the resources upon which it is based are valuable, scarce, inimitable, and non-substitutable (Bales & Fearon, 2006). Further, RBT is based on concept that resources controlled by firms are different and relatively immobile (Pearcy & Guinipero, 2008).

First, it is difficult to know with certainty that competitors have stopped to attempt to imitate one's Information Technology or will not attempt the same in future. Second, definition of sustainable Information Technology realizes on outcomes and excludes the technique and measurement of processes. These definitions do not address the changing nature of processes related to continuous improvement or organizational learning. Organizations acquire Information Technology from resources (such as new knowledge and capabilities) which are developed from time to time. Information Technology acquired from such resources will be sustainable since

other firms which attempt to imitate them do not have the prerequisite organizational skills, capabilities and learning needed to emulate them (Bales & Fearon, 2006). Therefore it is very important for any organization to boost its competitiveness by implementing unique resources such as human, capital and information technology.

2.2.2 Technology Adoption Model (TAM):

This theory posits that information system usage behaviour is largely linked with behavioural intention that is formed as a result of conscious decision-making processes. Behavioural intention, consequently is brought about by two belief factors; perceived usefulness and perceived ease of use.

This model aim explains why individuals accept information technologies. According Davis (1989) TAM perceived ease of use and perceived usefulness are the critical factors in explaining acceptance of information technologies by individuals. TAM notes that, in addition, to perceived ease of use and perceived usefulness, subjective norms is also important factor influencing adoption decisions of individuals.

According to Venkatesh, Morris, Davis, G & Davis, F. (2003) they stated that to consolidated all the prior studies on acceptance and usage in information technology and identified a holistic view of individual acceptance and usage behaviour in relation to information technology. The framework identifies four factors that are determinants of user acceptance: performance expectancy, effort expectancy, social influence and facilitating conditions. In addition to these three frameworks, the IT implementation literature also identified four key factors: senior management support, vendor support, user training, and user involvement (Ang, Sum & Chung, 1995).

Senior management support is generally reflected in two ways: a) willingness to provide the necessary resources to the implementation of an IT application; and b) a strong role played at resolving disputes result from the introduction of the IT system. When employees are given a clear signal from their senior management about the importance of the IT application to succeed and also receive considerable support in terms of necessary training and required changes necessary for business process, their willingness to accept that IT are increased (Ang, Sum & Chung, 1995).

Training helps employees in two ways: a) It helps in the transfer of knowledge from vendors consultants to employees about why the IT system is needed and how it should improve their work. This in turn helps in addressing the fear employees may have about the IT system; b) hand-on training helps employees to know about the features of the software and thus helps in developing a familiarity with the system. Thus, user training is essential to generate employee acceptance of any IT system. Finally, user involvement which refers to the participation in the IT system implementation process by representatives of target employee groups facilitate their acceptance of the IT system (Zhang, Lee, Banerjee, 2003).

Involving employees at both planning and implementation stages decrease the resistance to any IT system because they develop a feeling that they are important stakeholders who can make decision about how the system can be made work for them. According to TAM, one's actual use of a technology system is influenced directly or indirectly by the user's behavioral intentions, attitude, perceived usefulness of the system, and perceived ease of the system. TAM also proposes that external factors affect intention and actual use through mediated effects on perceived usefulness and perceived ease of use.

2.2.3 Stakeholder Theory:

The stakeholder concept has been demonstrated as a powerful tool of understanding the organization environment. This approach is with the sole aim of broadening the management's vision of its responsibilities and functions other than profit maximization concept and stakeholders identified in input output models of the organization and also include interests (Mitchell et al., 1997).

According to Freeman (1997) the main reason for stakeholder theory is to help managers to understand stakeholders and manage them strategically. It is also important for management to know how to handle stakeholders since the fair and just treatment of stakeholders is commensurate to the organization's long term survival (Jawahar & McLauglin, 2001 & Mitchell et al., 1997).

Stakeholders include customers, project managers, designers, funding organisations, users, employees, local communities, subcontractors and owners (Newcombe, 2003). As a result of robust construction management theoretical knowledge has developed in terms of how to identify and handle stakeholder interest and relationships. Effective stakeholder management starts with identifying the key stakeholder; identifying the strategic role of stakeholder groupings which in turn determines the types of strategies to be implemented. Moreover it has been noted that stakeholder can be classified according to urgency, power and legitimacy (Newcombe, 2003).

2.3 Conceptual Framework:

According to Smyth (2004), conceptual framework is defined as set concepts, ideas and theories to clearly identify the problem they are looking at, structure their questions and find the relevant literature. The independent variables of the study were user training, top management support, buyer- supplier integration and stakeholder interest while dependent variable were performance of e-procurement system.
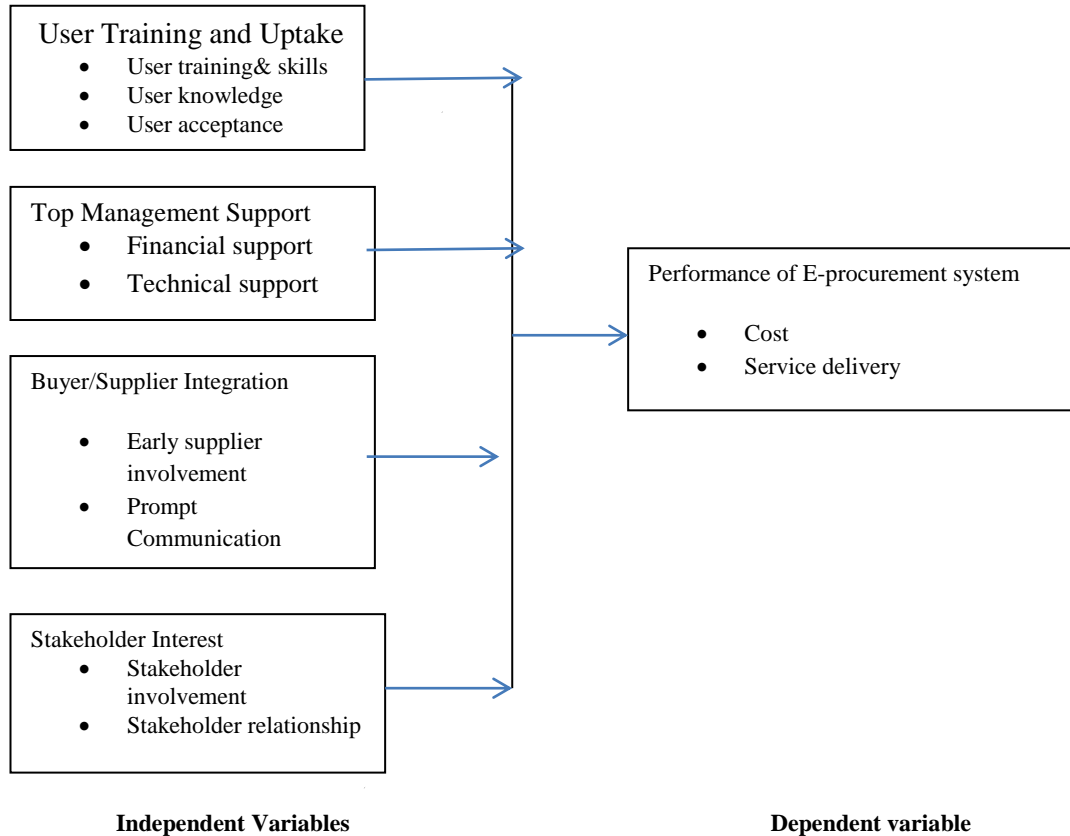

Independent Variables   **Dependent variable**

Figure 1. Conceptual Framework

3. RESEARCH METHODOLOGY

The research design for this study was descriptive case design. According to Orodho (2003) descriptive research design is the most appropriate design in getting responses from respondents who participate by answering questions. The target population of this study was the energy sector in Kenya while the study population was all the staff of procurement department at KenGen, Nairobi.

According to Kothari (2004) a complete enumeration of all items in the entire population is known as census. Census is normally preferred when the population is small. Therefore the study carried out a census of 45 employees in procurement department at the head office, Nairobi.

The researcher used both open and closed ended questionnaires as the research instrument.

4. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

4.1 Summary of Major Findings:

4.1.1 Findings on User training and uptake:

The study identified that the organization has a training policy that provides guidelines on training of employees on e-procurement an aspect most respondents agreed to. Training improved the acceptance of e-procurement system and changed the attitude towards E-procurement system. However, it was established that training was done once annually. Finally user training and acceptance was identified to have least significance of 19.8 % on e-procurement performance.

4.1.2 Findings on Top Management Support:

The study deduced that top management had strong significant relationship of 24.6% on the performance of e-procurement system in the organization. The study also established that the management did not provide enough funds to support the e-procurement system. The study also found out that the management provided advice on how to improve the e-procurement system as indicated by most respondents. On other hand, it was noted that management did not provide the tools and equipment necessary to enhance e-procurement.

4.1.3 Findings on Buyer- Supplier Integration:

The study established that the organization did not share the technology on e-procurement with its suppliers fully. It was also noted that early involvement of suppliers with regard to development and changes made to e-procurement system was not done fully. The study also established that the organization did not shared information with its suppliers openly and completely as indicated by 32% of respondents. Finally the study established that buyer-supplier integration has strong significant relationship on performance of e-procurement as indicated by 28.7%

4.1.4 Findings on Stakeholder interest:

The study also established that stakeholder analysis was not done fully prior to implementing e-procurement as noted by 45% of respondents. The study also established that the users were not involved in the implementation of e-procurement in the organization as indicated by 55% of respondents. Finally, it was identified that stakeholder interest had the strongest significance on performance of e-procurement of about 48.7%.

4.2 Conclusions:

The study concluded that the organization has a training policy that provides guidelines on training of employees on e-procurement an aspect most respondents agreed to. In conclusion, training improves the acceptance of e-procurement system and changed the attitude towards E-procurement system. However, it was concluded that training was done once annually. Finally, it was concluded that user training and acceptance was identified to have least significance on e-procurement performance.

The study concluded that top management had strong significant relationship on the performance of e-procurement system in the organization. The study concluded that the management did not provide enough funds to support the e-procurement system. The study also concluded that the management provided advice on how to improve the e-procurement system as indicated by most respondents. On other hand, it was concluded that management did not provide the tools and equipment necessary to enhance e-procurement. The study also concluded that management support is key to performance of e-procurement in the organization. In conclusion, the management should support e-procurement in the organization in terms of funding, policies, advice and provision of necessary tools and equipment.

The study also concludes that buyer-supplier integration is crucial to performance of e-procurement in the organization. In conclusion Buyer – supplier integration is done through how technology is shared, standard documents in use, involvement of suppliers and sharing of information. The study concluded that the organization did not share the technology on e-procurement with its suppliers fully. It was also concluded that early involvement of suppliers with regard to development and changes made to e-procurement system was not done fully. The study also concluded that the organization did not shared information with its suppliers openly and completely.

Finally, the study concludes that stakeholder interests are very crucial in improving the performance of e-procurement system in the organization. The study also concludes that stakeholder analysis was not done fully prior to implementing e-procurement. The study also established that the users were not fully involved in the implementation of e-procurement in the organization. Finally, it was concluded that stakeholder interest had the strongest significance on performance of e-procurement.

4.3 Recommendations:

In regard to the findings and conclusions made the study recommends the following to KenGen:

The organization should be conducting regular trainings in a span of one year. The training should include both users and suppliers. This will boost the understanding of various processes, activities and procedures. Training will also change users' perceptions, attitudes and consequently boost their competence.

The management should provide the needed finances and tools necessary to boost e-procurement. Further, the management should formulate favorable policies that will contribute positively to performance of e-procurement. This is because the management provides the general direction and policy to the organization. Therefore, the management is very crucial to performance of e-procurement and the organization as a whole. The organization should provide necessary equipment and facilities needed to boost e-procurement. Further, the organization should ensure internet connectivity is stable throughout.

The organization should seek to ensure the share the technology and standardize documents they use in e-procurement with the suppliers. This will minimize chances of misunderstanding and enhance feedback. Also the organization, should fully involve the suppliers in designing the e-procurement system. Lastly the organization should make sure its communication with supplier is above board, complete and open. This will minimize unnecessary conflicts and misunderstanding and fast track transactions. The organization can even initiate long term relationship, collaboration and partnership with its suppliers. This will provide a good platform for sharing information, technology and documents without fear of mistrust since all the parties will have mutual benefits in a win-win relationship.

Involvement of all stakeholders in the organization's activities will be very significant to its performance. Therefore, the organization should map out first the interests of each of its stakeholder. Thereafter, the organization should involve the stakeholder in developing policies and before, during and after implementation stages of e-procurement.

4.4 Areas for further research:

The study focused on four variables (user training and acceptance, top management support, buyer-supplier integration, stakeholder interest) on performance of e-procurement. This is because these variables only influenced 69.8% which means the remaining percent is influenced by other factors. Therefore, further research can be done on other variables on than those indicated.

The study focused on the energy sector in Kenya, therefore further research could include other autonomous sectors for instance a survey of several.

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